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COMPLETE SPECIFICATION

Improvements in Folded Packets

We, TEEPACK SPEZIALMASCHINEN G.M.
b.H., a German Company, of Viersen,
Rhineland, Germany, do hereby declare
the nature of this invention and in what
5 manner the same is to be performed, to
be particularly described and ascertained
in and by the following statement:—

This invention relates to a folded
packet, and particularly to an infusing
10 packet used for example in making tea,
the packet being of the kind which is
made by longitudinally folding a basic
sheet, superposing the longitudinal edges,
and attaching them together in such a
15 way as to form a longitudinal seam in the
centre of the tube thus made, the tube
being then folded transversely to provide
a pair of adjacent compartments. These
two compartments are externally con-
20 nected but internally separated by an
intermediate piece formed by at least
two such transverse folds. The packet as
a whole is then completed by bringing the
top edges of the two compartments
25 together, forming a top closing fold, and
fastening them. Packets of this kind
may be made having more than one pair
of compartments, for example having four
or six compartments, merely by using a
30 longer seamed tube and more transverse
folds. The two compartments of each
pair would still have the intermediate
piece.

Folded infusion packets are made with
35 one or more pairs of compartments to
improve lixiviation of the aromatic sub-
stance in the packet, since lixiviation is
improved if the infusing liquid only has
to penetrate the relatively small quantity
40 in each compartment, as opposed to the
penetration of a single large quantity in
a one-compartment packet.

According to the invention there is
provided a folded packet of the kind
45 referred to, having one or more than one
pair of adjacent compartments and the
compartments of each pair connected by
an intermediate piece, wherein the com-
partments of each pair have their longi-

tudinal seams facing one another and 50
wherein the transverse folds delimiting
the intermediate piece are so spaced apart
that, when the compartments have been
filled with the substance and the latter 55
has been caused to swell by the infusion
liquid, the inner walls of the compart-
ments of each pair can only move to such
an extent that the seams press against
each other at least over a short
60 extent.

This applies both when the intermedi-
ate piece is formed by only two transverse
folds and when it is formed by three trans-
verse folds, that is, it forms, before use 65
of the packet a fold which lies between
the two compartments.

Thus it is possible to use as infusing
packets folded packets of which the edges
forming longitudinal seams of the cham-
bers do not need to be attached by any 70
special means, but in which the longi-
tudinal seams are formed simply by fold-
ing the edges of the basic sheet over each
other. In this case, the longitudinal
seams facing each other of two adjacent 75
compartments, reinforced by the pressure
arising from the steeping and expansion
of the contents of the packet in the boiling
infusing liquid, press against each other
80 at least over a short extent, so that the
seams cannot open.

The transverse folds for forming the
intermediate piece connecting the two
adjacent compartments are, furthermore, 85
arranged in such manner that on placing
the open ends of the tube together, one
end projects over the other by the width
of the top closing fold and after filling
the chambers the corners of the longer
90 end are folded over the shorter and the
point which then stands out can be placed
on the turned-over corners. In this way,
one part of the tube, corresponding to one
compartment, can be shorter than the
other, that is, with the usual size of such 95
folding packets, by practically 8 mm.,
without anything being altered in the con-
tents of the packet. As such folding

packets are mass-produced, there is a considerable saving in material.

The advantages which these different compartment lengths, given by the special position of the transverse folds limiting the intermediate piece, offer, are also obtained when the longitudinal seam is not pasted together and if necessary additionally milled or rimmed at the edges.

Further, because of the different compartment lengths, the closing clip, which holds together in known manner the top closing fold, does not need to embrace layers of material. This closing clip will be arranged closely adjacent the position, given by the seam of the tube, of the greatest number of piled up layers of material, so that the clip will grip the longitudinal seam of the tube without passing through it, that is, without piercing the piled up layers. Although the folded packet is usually made of a water permeable paper, this arrangement, whereby the clip does not pierce the layers, is particularly important when perforated transparent film, or other material, impermeable to water, is used for making the folded packet, since such film tears easily and comparatively thick film must be used if the arrangement is not such that the clip grips the thick seam. By this gripping, tearing is prevented and the use of a thinner film is made possible. If the clip had to penetrate too many layers, special precautions would have to be taken; it might for example be necessary to drill the holes previously, which would particularly complicate the machine by which the packets are made, or a thicker wire would have to be used for the closing clip.

As a tie-string or the like is usually attached also to the packet by the closing clip, and owing to the much more advantageous attachment of the closing clip, there results the further advantage that the tie-string cannot tear off when the packet is in the boiling infusing liquid and the contents of the packet increase in weight by absorption of the liquid. This is particularly important with large packets.

The invention will now be described by way of example with reference to the accompanying drawing, in which:—

Figure 1 is a basic or initial sheet; Figures 2 and 3 show the basic sheet folded into a tube, the longitudinal seam of which is either folded according to Figure 2, or, according to Figure 3, is firmly tucked down and milled;

Figures 4 and 5 show respectively an intermediate form, and the prepared packet in an embodiment made from the tube of Figure 2; and

Figure 6 is an embodiment differing slightly from that of Figure 5.

With a basic sheet *a* according to Figure 1 the parts of the sheet adjacent to, and including, the edges *b*₁ and *b*₂ are so placed together by folding in the longitudinal direction of the tube *c* to be made, that the longitudinal seam *d* to be made runs in the centre of the tube *c*. When the edges are then brought together for forming the seam the edge *b*₁ projects, by about the width of the fold to be made, beyond the other edge *b*₂. This projecting part of the edge *b*₁ is then folded round the edge *b*₂, the two together being then again folded inwardly, as shown in plan in Figure 2, and the fold being then pressed on to the tube *c*. In this case, therefore, the longitudinal seam *d* is formed by the fold. A reinforcing wire or a string or a narrow metal band may be inserted in the fold. The end or ends of such a reinforcing element is or are preferably extended past the end of the tube and form a holding device on the end of which there is usually attached a label, seal or the like. In Figures 5 and 6 a reinforcing string *e* is shown. The tube according to Figure 2 is then twice folded transversely to its longitudinal direction for producing a packet according to Figure 5 so that the longitudinal seam *d* is located inside, in the intermediate form shown in Figure 4. It can be seen from Figure 4 that the tube *c* is subdivided into two compartments *g*₁ and *g*₂ by folds *f*₁ and *f*₂, which compartments are separated from each other by an intermediate piece *h* and their longitudinal seams face each other and, further, that the part of the tube forming the compartment *g*₂ is shorter by about the width of the top closing fold which is to be produced.

From the intermediate form according to Figure 4, there is produced the packet of Figure 5 which is shown in the filled condition and closed by placing together the open ends of the tube *c* in such manner that one end projects over the other by the width of the top closing fold *i* and, further, by the corners of the longer end being bent down over the shorter end, the point then remaining placed over the bent-down corners.

On this top closing fold *i* a closing clip *k* is provided, on which is fastened a holding device, for example, a string or the like, if the holding device is not formed by the extension of a reinforcing device inserted in the seam *d*. The closing clip *k* is arranged in the position, given the seam *d*, of the maximum number of layers of material placed one on the other and in such manner that it is folded over

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and round the seam d without penetrating the seam d .

The embodiment of the packet according to Figure 6 differs from the embodiment according to Figure 5 simply by the intermediate piece h having a further fold f_3 , so that the piece h in the folded condition can come between the compartments g_1 and g_2 .

10 With the packet according to Figures 5 and 6, the piece h is so dimensioned that the transverse folding lines f_1 and f_2 which limit it—in the embodiment according to Figure 6—measured with the piece
15 extended—are at such a distance from each other that after the filling of the compartments g_1 and g_2 with the predetermined quantity of the filling material, these can only swell to such an
20 extent that the longitudinal seams of the compartments g_1 and g_2 press against each other over a short extent. This dimensioning of the piece h allows for the first time the use of an ordinary fold
25 without any further special means for attaching the edges b_1 and b_2 of the sheet than the longitudinal seam d for the tube c . If, however, special means for attaching the edges b_1 and b_2 of the sheet
30 are provided then special measurement of the piece h is still advisable for reasons of safety.

The tube shown in Figure 3 has been made by superposing the edges b_1 and b_2
35 of the basic sheet a , and not by folding these edges. Here also the seam d runs in the centre of the tube c . In this case, the edges b_1 and b_2 are attached together
40 to increase the security of the attachment, although milling is not essential. The thermal adhesion by glueing takes place in well-known manner. But it is important to use here an adhesive which does
45 not become loosened on use of the packet in the hot infusion liquid.

All the embodiments can be varied by suitable proportioning of the length of the basic sheet a and by correspondingly

repeated transverse folding such that 60 packets are produced having more than two compartments.

What we claim:—

1. A folded packet of the kind referred to having one or more than one pair of 55 adjacent compartments and the compartments of each pair connected by an intermediate piece, wherein the compartments of each pair have their longitudinal seams facing one another and wherein the 60 transverse folds delimiting the intermediate piece are so spaced apart that, when the compartments have been filled with the substance and the latter has been caused to swell by the infusion liquid, the 65 inner walls of the compartments of each pair can only move to such an extent that the seams press against each other at least over a short extent.

2. A packet according to claim 1, 70 wherein the transverse folds are so arranged that, on placing together the open ends of the tube, one end projects beyond the other by the depth of the closing fold to be produced, and so that, after 75 filling of the compartments, the corners of the longer end can be bent down over the shorter, the point then remaining being placed over the bent-down corners.

3. A packet according to claim 1 or 80 claim 2, wherein a closing clip holds the closing fold together at a position closely adjacent the seams, which position has the greatest number of superimposed layers of material, the closing clip being placed 85 over the seams without penetrating through them.

4. Folding packets of the kind referred to, having one or more than one pair of 90 adjacent compartments and the compartments of each pair connected by an intermediate piece, substantially as described with reference to the accompanying drawings.

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